

VU Research Portal

Towards an internet generation pre-transaction model

Verhagen, T.

1999

document version

Early version, also known as pre-print

[Link to publication in VU Research Portal](#)

citation for published version (APA)

Verhagen, T. (1999). *Towards an internet generation pre-transaction model*. (Research Memorandum; No. 1999-37). FEWEB.

General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal ?

Take down policy

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

E-mail address:

vuresearchportal.ub@vu.nl

SERIE RESEARCH MEMORANDA

Towards an Internet-generation Pre-transaction model

Tibert Verhagen

Research Memorandum 1999-37

July 1999



Towards an Internet-generation Pre-transaction Model

Tibert Verhagen
Faculty of Economics
Vrije Universiteit Amsterdam
Email: tverhagen@bik.econ.vu.nl

1. Introduction

The influence of Information and Communication Technology (ICT) on business has been growing impressively in the last decades. The Internet can be seen as one of the best examples of this development. While invented for military purposes (Arpanet) the Internet has more and more been used for business practices. This has especially been true since the middle of the 1980's when communication and information suddenly became available at an affordable price through online services like chat rooms, inter-relay chat and news groups. Although this could be seen as a big step already, two important aspects were still missing: utility and ease of use. These two aspects improved in the early 1990's with the advent of the World Wide Web (Kalakota, Whinston, 1997). Since then the impact of ICT (and especially the Web) on transaction processes has gained momentum.

What is the nature of this impact? We assume this question can be found in the relation between ICT and transaction costs. According to Coase (1988) transaction costs are costs that exist due to market inefficiencies. Malone, Yates and Benjamin (1987) connected transaction costs to ICT by suggesting that ICT has the ability to lower these costs. This implies that ICT can play an important role in transaction processes by lowering transaction costs for both suppliers and customers.

According to transaction costs economics the transaction process mentioned above can be split up in three stages: ex-ante, agreement and ex-post. The ex-ante stage can be described as the stage of a transaction before the agreement has been established. The ex-post stage, in contrast, contains the activities after the agreement has been established. The agreement itself can be seen as the completion of the deal. This research memorandum will focus on the ex-ante stage.

The ex-ante stage has been widely discussed in marketing and sales literature. Various authors (for example: Kotler, 1997; Harrel & Frazier, 1999; Solomon, 1996) have been using models to describe the course of an ex-ante process in the business-to-consumer market. Ex-ante models have been constructed, either from a customer or a supplier point of view. Ex-ante models from the supplier point of view are often called presale models whereas models that focus on the ex-ante customer process are mainly found as prepurchase models. Most of these sequential prepurchase or presale models have comparable basic steps. Concerning a prepurchase model these basic steps are *problem recognition*, *information search*, *evaluation* and *decision* while the basic steps of a presale model include *qualification*, *presentation*, *configuration* and *close*. The majority of these models have been developed decades ago, which is the reason why we call them traditional models. Most of them are still used the same way today, which is remarkable, because today's commerce has been changed by different

forms of ICT. Especially the Web has been able to change the transaction process by adding new features for both customers and suppliers. These are not present or not needed in the case of traditional models. Moreover the traditional models do not discuss the impact of ICT on transaction costs and mostly do not talk about transaction costs at all. Furthermore most models look at customers as being rather mechanistic by suggesting that customers will act in a rational way to fulfill their needs. Both the underexposure for ICT and transaction costs and the way the models look at the customers seem unsuitable for electronic commerce nowadays. This makes the current dominant position of traditional prepurchase and/or presale models even more a puzzle.

In literature some models have looked at the prepurchase and/or presale stage in a different way. These models pay, in contrast to the traditional models, attention to the influence of the World Wide Web. These models belong to a generation of models, which can be called the Internet generation models. Most of them have been constructed more recently. In addition they look at customers in a more flexible way than the traditional models do. Examples of authors that constructed models like this are Ives & Learmonth (1984), Champy et al (1996) and Creemers (1997). Especially the latter focuses on the ability of ICT to change transaction costs for both buyers and sellers.

Now that e-markets are becoming mature, it becomes clear that a number of enhancements can still be made. The aim of this article is to derive a new model, called the Landscape model. It is based on thoughts underlying Creemers' model and belongs to the Internet generation models. It is built on three pillars: transaction costs, marketing and ICT. The Landscape model focuses on the pre-transaction process. This term, which reveals a lot about the approach behind the model, is chosen for a couple reasons. First the pre-transaction process is not the same as the ex-ante (transaction) process. The ex-ante (transaction) process refers mainly to the approach that looks at the ex-ante stage from a transaction costs point of view. Transaction costs are important in our approach but they do not need to be over emphasized. Furthermore, we combine the in marketing and sales literature found prepurchase and presale process into one model by considering **both** processes **before** the agreement is made. This combination is reflected in the term pre-transaction process. Besides, the Landscape model will look at the customer in a relative flexible way.

The article is structured as follows:

It continues with section two where traditional prepurchase and presale models will be discussed. Also transaction cost theory and the relation with ICT will be discussed in this part of the article. Section three will pay attention to some internet generation prepurchase models that, in contrast to the traditional models, have been constructed with the consideration that ICT might influence the prepurchase stage. One model adds the presale process to the prepurchase stage which makes it a pre-transaction model. The fourth section introduces a new internet generation pre-transaction model: the Landscape model. Finally section five concludes the article with some discussion points and research implications.

2. Traditional Prepurchase and Presale Models

Various authors representing different disciplines have been paying attention to the presale and prepurchase process. Well-known are traditional models derived from philosophy-, sales- and marketing literature which **describe** the prepurchase or presale stage from respectively the customer or the seller side. This section will pay attention to these models while also the relation with transaction costs and ICT will be discussed.

Models

The prepurchase models are often called decision models, and they have much in common. First **the basic steps underlying most of the prepurchase and presale models are the same**. For the customer side these common steps or stages are shown in figure 1.

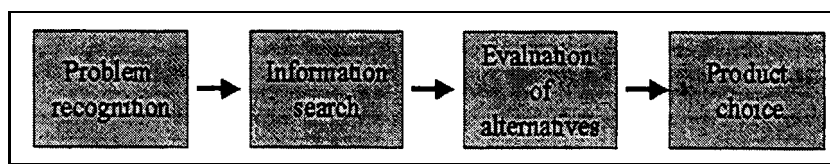


Figure 1: **Common steps in the prepurchase process:**

Examples of authors that use these basic steps in their prepurchase model are Engel, Harrel and Frazier (1999), Kotler (1997), Kotler and Armstrong (1999), Mowen and Minor (1998), Miniard and Blackwell (1995), Rustenburg, van Hoften and Steenbeek (1998) and Solomon (1996).

For the supplier side the common steps are shown in figure 2.

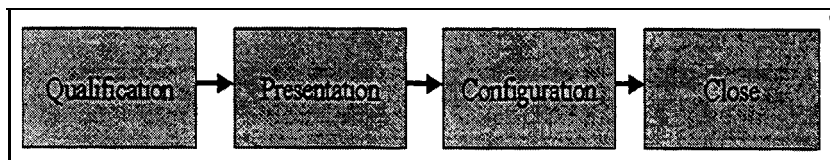


Figure 2: **Common steps in the presale process:**

Qualification can contain aspects like: making contact, finding the customer's needs and determine the sales approach. The configuration stage has mainly to do with meeting the objections of the customer. Examples of authors that support these steps are Anderson (1987), Futrell (1991), Jackson, Cunningham and Cunningham (1988), Rustenburg, van Hoften & Steenbeek (1998) and Siebel & Malone (1998).

The years of the references mentioned above may give the impression that the models are rather recent. But when checking the references used by the authors it becomes clear that the common steps used can also be found in literature of decades ago. These prepurchase and presale models have been widely recognized for decades and are still used by many authors in the same way today.

Another shared aspect is the sequential approach. The standard prepurchase or presale procedure is that a buyer or a seller starts in phase 1 and ends in phase 4. For many customers however, the sequence of the stages can vary depending on a lot of factors including the purchase type (first time purchase or straight rebuy/planned or un-

planned purchase), the product (convenience, shopping or specialty good) or external factors (time pressure) (Boekema et al, 1995). Because of these factors the customer might even skip some steps. This might also apply to the seller but literature pays little attention to this. Anyway, the excluding of steps or the changing of the sequence doesn't change anything about the sequential approach of the models.

Transaction costs

Going through the prepurchase or the presale process costs money for both customers and suppliers. These costs are in transaction cost theory well known as *ex-ante transaction costs*.

In his paper "The nature of the Firm" Ronald Coase (1937) discussed questions like: why do firms exist?, why do they have their actual size? and what functions do these firms contain? To explain these questions he introduced the theory of transaction cost economics. Transaction costs are: "a set of inefficiencies in the market that should be added to the price of a good (or service) in order to measure the performance of the market relative to the nonmarket behaviour in firms" (Downes, Mui, 1998, p.37). According to Coase there should not be a reason for companies to exist if these market inefficiencies (transaction costs) would not be present. He underpinned this statement by saying that a perfect market mechanism will always be able to perform an activity more efficiently than a nonmarket structure. In a fully transparent market with a perfect market mechanism buyers and sellers are able to find each other perfectly with no additional costs. The real world proves the opposite (Coase, 1988). Coase concluded that firms are created because the costs of organising them are cheaper than the transaction costs involved when doing business. So a firm will only perform those activities that can't be done cheaper by the market or by another firm. A firm will expand precisely to the point where "the costs of organising an extra transaction within the firm becomes equal to the costs of carrying out the same transaction by means of an exchange on the open market" (Downes, Mui, 1998, p.39).

Although the transaction costs theory of Coase is based on industrial markets in the 1930's and the theory does not pay attention to subjects like the agency costs, it can still be used to look at the prepurchase or presale process. In fact transaction costs seem to be very important in as well as describing and explaining the prepurchase and presale process. Before making statements about this relation the different ex-ante transaction costs will be listed first.

Various authors have distinguished ex-ante transaction costs in different types.

One of these authors is Williamson (1985) who divided the ex-ante transaction costs into three types.

- 1) drafting costs: the costs that are made due to the fixing of the agreement that concerns the determination of the conditions under which the agreement is made.
- 2) negotiating costs: the costs that exist due to negotiations about the conditions under which the intended transaction has to be made.
- 3) safeguarding costs: the costs related to the protection of the conditions that are fixed in the contract.

Transaction cost theory is based on rational acting. However, Williamson also discussed that non-rational aspects, like bounded rationality and opportunism, have an important impact on transactions (Williamson, 1985). Although our approach mainly uses transaction costs in a rational way, it does not deny this non-rational side of transactions.

Downes and Mui (1998) constructed another transaction costs grouping. It will be used in the rest of this article because the types seem to correspond relatively well with the stages of the **prepurchase/presale** process.

According to these authors transaction costs can be distinguished in six basic types:

1) ***search costs***

the costs made by buyers and sellers to find each other in the market.

2) ***information costs***

for buyers:

the costs to learn about the products and services of sellers and basis for their costs, profit margins and quality.

for sellers:

the costs to learn about the legitimacy, financial condition and need of the buyer.

3) ***bargaining costs***

the costs that buyers and sellers make when setting the terms of a sale or a contract which might include: services costs, legal contract negotiating costs, exchange of data, meeting, phone calls, E-mail, brochures.

4) ***decision costs:***

for buyers:

the costs of evaluating the terms of the seller compared with other potential sellers and internal processes (approval, ensuring that the purchase meet the policies of the organisation)

for sellers:

the costs of evaluating whether to sell to one buyer instead to another buyer or not at all.

5) ***policing costs:***

the costs of making sure that the goods, service(s) and terms under which the sale was made are in fact translated into the real goods and services exchanged (inspecting the goods and negotiations having to do with late or inadequate delivery or payment)

6) ***enforcement costs:***

the costs that buyers and sellers make in ensuring that unsatisfied terms are remedied (mutual agreement on discounts or other penalties; the use of an external third party) (Downes, Mui, 1998).

Now that the different transaction costs types have been explained we would like to answer an important question: ***“what makes it so interesting to look at transaction costs while analyzing the prepurchase and/or presale process in the consumer market?”***.

The main part of the answer to this question is based on the assumption that buyers and/or sellers will lower their transaction costs whenever they can. When sellers are able to reduce their transaction costs it implies that they will be able to operate more efficiently. It can also be an advantage for customers when it will be used to reduce

the price level. Both efficient operations and a lower price level can be an advantage towards competitive forces **and/or** might lead to higher profits for sellers. Customers will try to lower their transaction costs too in order to buy goods/services at lower efforts. We assume that buyers are willing to buy more when transaction costs decline. This will of course be an advantage for the seller as well. Lower transaction costs at one side seem to be beneficial to the other side. The traditional models do not pay attention to the relations mentioned above. In fact they do not seem to pay attention to transaction costs at all, which can be seen as a big disadvantage.

ICT

During the last decades Information and Communication Technology (ICT) has been changing business processes enormously. One of the most important aspects in achieving this is the ability of ICT to change (lower) transaction costs for both buyers and sellers.

In literature Malone, Yates and Benjamin (1987) were the first authors who clearly paid attention to this relation. In their '*Electronic Markets and Electronic Hierarchies*' they introduced transaction cost economics into the science of information systems. They argued that ICT would be able to lower the transaction costs, which would result in a so-called move to the market. This means that markets would finally become the dominant governance structure at the expense of hierarchies. Although this theory is outside the scope of this article, the relation between ICT and transaction costs is very important.

Applied to the grouping of Downes and Mui we focus on the abilities of various Internet based/related forms of ICT. By using an overarching form of ICT, like the Web, customers and sellers are likely to find each other in the market against relatively low efforts. This will lower search costs for both sides. Furthermore, the Web improves interaction abilities. This might result in lower bargaining, policing and information costs for both customers and sellers. More specific forms of ICT, like Web-site supporting software, may also have a big impact on transaction costs. By using search-engines and brochureware customers are able to lower their information costs. Intelligent software agents may even lower search, information, bargaining and decision costs for both sides. Enforcement costs might be lowered by using an online Trusted Third Party. Furthermore, ICT might also be used just to get more out of the presale/prepurchase stage without focussing on transaction costs. The traditional models do not seem to pay attention to these abilities of ICT. They were probably constructed at a time that the potentials of ICT to influence the prepurchase/presale process were moderate.

To sum up, most traditional prepurchase and presale models have similar steps and sequences, and are all too simple to explain complex buying and selling behavior. Moreover, they do not provide insight in the way ICT changes the process or behavior in individual steps. This implies that these models should not be used anymore in electronic sales and purchase solutions.

3. Prepurchase Internet generation models

Compared to the traditional prepurchase models Ives and Learmonth (1984) looked at the prepurchase stage in a different way. In their Customer Service Life Cycle model

they describe the different stages a customer goes through during the acquisition and use of a product or service (through the eyes of the customer). An important aspect of the approach of the authors is that they use possible questions that customers might want to ask. The model contains four stages: requirements, acquisition, ownership and retirement (see figure 3).

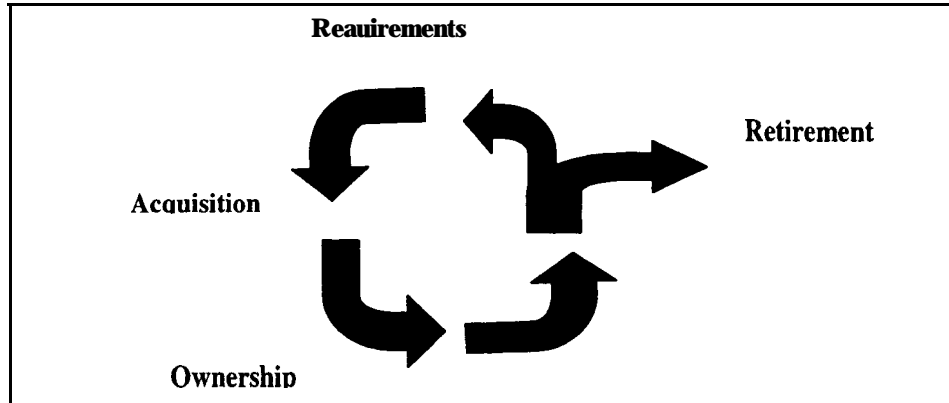


Figure 3: The Product Life Cycle model of Ives and Learmonth (1984)

The prepurchase process can be found in the requirements and the acquisition stage. These two stages will be explicated below.

The requirements stage is the part of the prepurchase process a customer might go through before making the decision to buy the product/service (or not). During this stage the customer often faces ignorance or uncertainty regarding a product/service and wants to get answers to many questions. Some of these questions might be:

- What is this thing?
- Why would I want one
- Can I design my own
- Can you get it to Paris on time?
- Have you got a store near Oxford?
- How is yours better than theirs?

The next stage is the acquisition stage. When customers enter this stage they have decided to buy the product or service but still have a lot of questions regarding the purchase process. Possible questions might have to do with:

- The location of a sales point (is there an outlet near me?, where are you located?, how do I get there?, can you give me a map?)
- The placement of an order (how do I order it?, do you have it in stock?, can I order it automatically?)
- Payment (do you give credit?, how do I know I can trust you?, how can I pay?)
- Status checking (what has happened to my order?)
- Taking possession (do you deliver?, can we schedule a time?, can I get it online?)

As the text above makes clear the model of Ives and Learmonth is, just like the traditional model, mainly sequential. However by using the different questions in each stage the authors suggest that within each stage the prepurchase process contains dif-

ferent aspects. The questions are not placed in a typical sequence so within each stage we notice a more flexible approach.

Ives and Learmonth consider the impact of ICT on the prepurchase stage by looking at the abilities of ICT to answer the questions of the customers. According to the authors ICT has the ability to support the customers during all prepurchase stages. The bigger the need for information during a stage the greater the opportunity for ICT to be supportive.

Recently the authors show that relative new forms of ICT (like the World Wide Web) have the ability to influence the prepurchase stage in their model. The Web seems to be the ideal overarching form of ICT to support the prepurchase stage (<http://www.cox.smu.edu/mis/talks/www/cs1c/cs1c1.html>, February 1999). Examples can be found everywhere. Many commercial sites have their own search facilities (search engines) allowing customers to find the products they need (Amazon.com). Product- and company information is available on almost every commercial site. Frequently asked questions (FAQ's) exist to help customers with diverse questions (SGI.com) and E-mail can be used to interact with customers in a personal way (Sterne, 1996). Besides new security measures, safe payment methods and encryption techniques might reassure the safety of transaction towards customers in the future. By supporting the different stages mentioned above ICT influences (mostly reduces) the transaction costs. The authors do not discuss this relation but we think it is obvious that this relation can be made explicit in both the model and their approach.

Like Ives and Learmonth Champy, Buday and Nohria (1996) created a prepurchase model where the capabilities of online technology and the needs of the customer got a central place. Champy et al. came up with a multitude of relevant steps that the customer might need and will go through during the prepurchase process. These steps are (Champy, J.; Buday J.B. & Nohria N., 1996):

- 1) *Knowledge* (the customer searches for relevant information that can help him or her make sound buying decisions)
- 2) *Interaction* (the customer wants to communicate about a product with the potential providers)
- 3) *Networking* (the customer wants to find and talk to others who already use the product who are considering a purchase)
- 4) *Sensory experience* (the customer wants to see, hear, or touch the product to arrive at a consumption decision)
- 5) *Ubiquity* (the customer wants to have the products at the time and place he or she needs them)
- 6) *Aggregation* (the customer wants the supplier(s) to bring together a number of required goods and services in the process)
- 7) *Customization* (the customer wants the supplier to tailor the product to his/her individual's needs)

Although we basically agree with the description of the factors above (based on Champy's work) we would like to slightly adjust the descriptions of sensory experience and aggregation. To the description of sensory experience we add that the customer might also want to *smell* and *taste* the product next to seeing, hearing and touching. Furthermore we like to add to the description of aggregation that customers might also want *related* goods next to the required goods.

Champy et al. labelled the seven points as steps and the model could be classified as a sequential model. However we doubt whether the prepurchase process will be as described in the sequence above. The used sequence gives a rather random impression. Therefore we prefer to call Champy's steps factors or aspects.

Champy et al. show how ICT (especially online technology) can be used to support these factors. Ives and Learmonth also used the supportive role of ICT but Champy et al. connected the ICT support directly to their model (instead of doing this less directly by using questions). The same examples as given for the Customer Service Life Cycle can be used for Champy's model too. Some relatively new ICT developments are also able to support steps like networking and sensory experience. Virtual communities on the World Wide Web are a good example of technology that supports the need of customers to use the factor networking (Hagel & Armstrong, 1997) while 3D supporting soft- and hardware will improve the sensory experience. Just like Ives and Learmonth, Champy et al. did not clearly pay attention to the potential impact of ICT to change transaction costs.

Both models described above, only pay attention to the prepurchase process. Creemers (1997) on the contrary also looked at the presale process. He combined Champy's customer side factors with the supplier's presale process which together covers the pre-transaction process. The presale process in Creemers' model has a lot in common with the general presale model as described in section 2. It contains all steps that the supplier can go through in selling a product. The dimensions comprised in this presale model are:

- 1) *Knowledge* (the supplier searches for relevant customer information, which might be provided by the customer or bought from others)
- 2) *Interaction* (the supplier wants to communicate about his product range with prospective customers)
- 3) *Advice* (the supplier wants to help the prospective customer to make product choices and decisions)
- 4) *Quote* (the supplier wants to give quotes for his products)
- 5) *Agreement* (the supplier wants to enter into an agreement with the customer and has to prepare and process documents)

(Creemers, 1997)

Later, Creemers added the factor *selection* to the supplier's side of his model. *Selection* is defined as: the supplier wants to have the ability to make a catalogue of his products available to the customer.

Furthermore we would like to add to the factors *interaction* that a supplier might want to talk with prospective customers about other things than the product range. A supplier might also want to talk about his company, about the image of his company or about other subjects concerning the customer.

The combination of the sequential presale process with the customer needed prepurchase factors of Champy is shown in the figure 4 below.

When analyzing the model it becomes clear that some factors seem to support the prepurchase process (left side) and some the presale process (right side). Some factors

(knowledge, interaction and agreement) are found on both sides. A weak point of this model is that it looks like a sequential model. Although it contains some parts that can be classified as sequential (especially on the supplier's side) there are many parts that are not sequential at all. Therefore Creemers' model receives the same criticism as Champy's model. We assume it might be better to call the steps factors. In doing so the model provides insight in what factors should be available to ensure a pretransaction process that fulfills all customer needs.

Knowledge	
Interaction	
Networking	Selection
Sensory experience	
Ubiquity	Advice
Aggregation	
Customization	Quote
Agreement	

Figure 4: Steps in the pre-transaction process (Creemers, 1997)

Like the other authors in this section Creemers also emphasized the possibilities of ICT to support the stages of his model. In contrast to the other models in this section Creemers also showed how various forms of ICT are able to support the presale process. Again the World Wide Web can be used as one of the best examples. By using a **Website** (which is supported by various forms of ICT) suppliers are able to learn about customers (knowledge) and to interact with them (interaction). Furthermore by using the Web suppliers can make a selection available, give advice and carry quotes to the customers. Finally the *agreement* can be accomplished online.

Next to the attention of ICT to support the supplier side, the approach of Creemers differentiates from the other models to another point. Creemers clearly discussed the fact that ICT has the ability to change (lower) transaction costs by influencing the pretransaction process.

We can conclude that, compared to the traditional models, the models discussed in this section pay much more attention to the use and possibilities of ICT to influence the **prepurchase and/or** presale process. Creemers discussed and added transaction costs to this connection. Besides the models distinguish different factors that customers (and suppliers) might need during their part of the pre-transaction process. A weakness of the models (especially Champy and Creemers) is that they do not succeed in combining the factors with a plausible sequential approach. Besides, the used sequences lack flexibility. The next section will introduce a model without these weaknesses by using needed pre-transaction factors in a flexible sequential way.

4. An Internet-generation pre-transaction model

The model of Creemers has been the starting point for the development of a new pretransaction model. We call this model the Landscape model. The results are shown in figure 5 (below).

The new model represents the pre-transaction process. More specifically the Landscape model looks at the factors the customer and the supplier may need during the

pre-transaction process. It also pays attention to the sequence of the pre-transaction process. The model will be explained below.

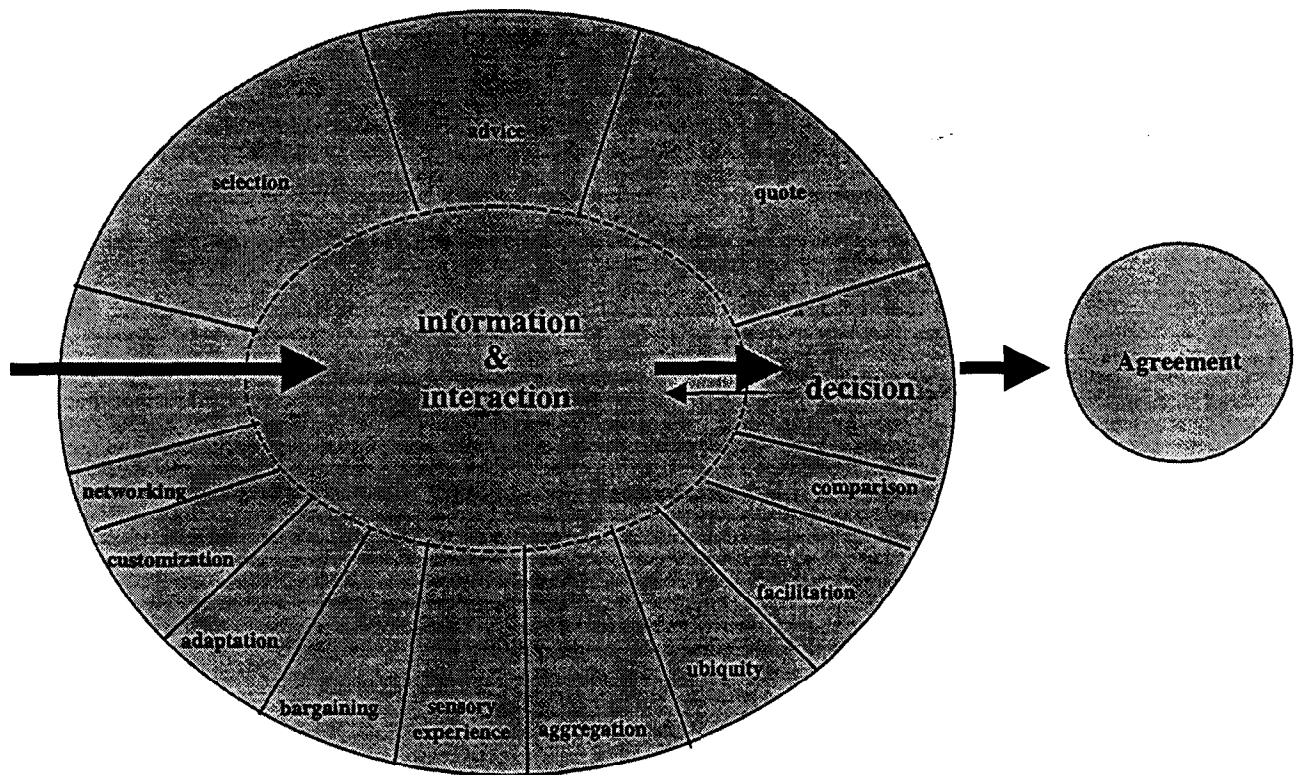


Figure 5: the ex-ante Landscape model

Five new factors are added to these used in Creemers' model. These are all representing customer **prepurchase** needs and can be seen as a completion of the seven factors of Champy et.al (1996). The factors are:

- 1) *Comparison* (the customer wants to have the possibility to compare different products/services of the supplier or from different suppliers).
- 2) *Adaptation* (the customer wants the supplier to adapt the ex-ante process to his/her needs and preferences)
- 3) *Facilitation* (the customer wants to have the ability to use process supporting facilities)
- 4) *Bargaining* (the customer wants to have the possibility to bargain about the purchase)
- 5) *Decision* (the customer wants to have the possibility to evaluate and the support to make the decision whether to buy or not)

The fifth factor is also part of the supplier's side. In this context *decision* can be seen as the wish of the supplier to evaluate and decide whether to sell to the customer, to sell to another customer or not to sell at all.

We changed the factor knowledge into *information*. This was done because the factor represents the collecting of information from both sides. The collected information might be organized and processed later to convey understanding, experience, accumulated learning and expertise that apply to the current issue. Then it can be called knowledge (Turban, McLean & Wetherbe, 1999). Because the factor is not directly

dealing with this process but focuses on the collecting of information, knowledge does not seem to be the right word.

When looking at the model it becomes clear that four factors are needed by both sides. These shared factors are *information*, *interaction*, *decision* and *agreement*. Next to these 'common' factors there are factors that are mainly supporting the prepurchase (customer side) or presale (supplier side) process. The mainly customer side supporting factors are shown in the lowest half of the circle (from networking till comparison) while the mainly supplier side supporting factors are placed in the upper half of the circle (advice, selection and quote). The reason why the term 'mainly' is used in the sentences before is that we assume that the availability of factors of one side in the process will also be an advantage for the other side. The availability of selection, advice or quote will be an advantage for customers because it will improve the quality and possibilities of their prepurchase process. On the other hand, the availability of the customer side factors will, by improving the customer's prepurchase process, be advantageous to the suppliers because customers might be willing to buy more. It will be in the interest of the supplier to make sure that all factors are available. This will improve the quality and lower the transaction costs of the pre-transaction process for both sides.

Normally models in literature discuss and use prepurchase or presale models from respectively the customer *or* supplier side. The Landscape model on the contrary does not clearly choose a side. It looks at the pre-transaction process in an interactional way with a slight emphasis on the customer's side.

Just as we discussed in the third section ICT can be seen as the instrument in reassuring the availability of factors (see examples section 3). This also counts for the new factors. *Comparison* can be attained by using software on a **Website** that makes it possible for customers to compare two or more products/services with the attributes the customer prefers. *Adaptation* can be realized in many ways. A good example is **Website** supporting software that gives the customer the possibility to change the language to the preferred one. Besides some site supporting software even makes it possible to adapt the content of the pre-transaction procedure to the wishes of the customer. *Facilitation* can be obtained by making items like a shopping cart available. Another example is the ability of some sites to download supportive software to improve product/demonstration display. *Bargaining* can be supported by intelligent software agents that bargain in name of the customer with intelligent agents of the supplier. Furthermore suppliers could make sure that customers have the possibility to use an online auction to bargain (Strauss & Frost, 1999). Next to bargaining also the factor *decision* can be supported by using various types of intelligent software agents. Anyway, making the factors available is not enough. The quality of the **pre-transaction** process is also determined by the quality of each-factor separately. Therefore a supplier should try to make sure that all factors separately are scoring high. Apart from that, Creemers developed a checklist to measure this quality of **pre-transaction** factors. The checklist is meant to test the pre-transaction quality of **Web-sites**. It can be used to evaluate the presence and quality of pre-transaction factors in relation to the number of completed transactions on 100 unique site visitors (Creemers, 1999). It will be used for further pre-transaction research.

Assuming that an individual supplier has the power to completely determine the pre-transaction process of its customers might be too easy. This is conducted in e-commerce via the Internet where the customer also has some influence. The customer can make use of needed factors that are outside the scope of the supplier. Examples are independent Virtual Communities or consumer organizations at the Web. It is also possible that Web portals or other commercial sites support some factors.

Like the traditional models in literature the Landscape model also describes the pre-transaction process in a sequential way. Anyway the Landscape model does this differently. It is more flexible.

How does the pre-transaction process for a customer look like according to the Landscape model? A central path forms the heart of the model. This central path starts at a 'square' with *information & interaction*, followed by *decision* and ending in the final *agreement* (the earlier mentioned shared factors). It can be compared to the common steps found in literature in the prepurchase process of a customer (see figure 1) although the possibility of using the other factors makes it completely different. The central path can be seen as the shortest and most minimal way to do business. A repeated or an impulse purchase might occur in this way. Also very simple products can be bought like this. When a customer wants to do business this way, the supplier will have to walk the same path although the used factors (steps in this case) have a different meaning. This central path can be seen as a path in a landscape. The landscape is formed by the rest of the factors. A customer who enters the pre-transaction process doing a purchase as described before (repeated or impulse purchase) will stay on the path. The customers who *need* the other factors can just use them as they want. Some will use all factors; some will just use one or a couple. Some customers will use the factors in a typical sequence and some completely random. Some will use them once and some will use them repeatedly. All this depends on the type of customer, the type of product and external factors that influence the buyer, the product or the process. In contrast to a lot of other presale and/or prepurchase models in literature these differences do *not* matter to the Landscape model because customers can structure their pre-transaction process to suite their convenience. To avoid misunderstandings it has to be said that the landscape can be much more than only one Website. A customer might visit or make use of a lot of different Websites that all have their own landscape and are part of the general pre-transaction landscape.

After walking through the landscape the customer will return to the path (on the square). Then the customer will continue his/ her path by evaluating the product(s)/service and will finally decide to check out to the agreement (or not in the case of a negative decision). When the decision is made to buy there will be no turning back to the different factors. While evaluating/deciding there is still a possibility to return to the square to use some needed factors of the landscape. This is indicated by the (to the left pointing) arrow in figure 5.

Basically the landscape approach looks at the pre-transaction stage as a funnel where very different types of customers/prospects can go through. Some of these customers know exactly what they need while others do not even have one (or are not aware of it). In fact the recognition of the customer's need does not influence the model and is therefore not covered. The model is not interested in the question how the need existed or how a company can influence this. The model is meant to be behavior descriptive and has no intention to *explain* customer behavior.

The objective of the supplier is to optimize the pre-transaction process (by using ICT to make all the needed factors in the right way available, which might result in lower

transaction costs for both parties). By doing so, we assume that relatively many customers will be persuaded to follow the path until the end of the funnel and to check out successfully to complete a transaction.

5. Discussion, Research Framework and Implications

This article has stated that there is a strong relation between the support and quality of pre-transaction factors and the number of fulfilled transactions. The factors represent the *functionality* of the pre-transaction process. However, this functionality is not the only thing that determines the transaction ratio. There are three other dimensions that directly play a significant role. These dimensions can be seen as preconditions for a successful pre-transaction process. *Access* is one of the dimensions and concerns reaching the supplier. The Internet has improved the access to many stores dramatically. Without access there will be no transaction. Therefore this dimension can be seen as the first precondition for doing successfully business online. A second dimension, *availability*, has to do with the question what access brings to the customer. After a customer got access to the (Website of the) supplier, the most important aspect is whether the supplier's services are available to the customer. A bad availability has a negative impact on the number of completed transactions (Creemers, 1998). While experiencing functionality another dimension starts to influence the customers pre-transaction process: *usability*. Usability has to do with the clarity of the pre-transaction process. Applied to our model it refers to the architecture of the landscape. It contains aspects like Website navigation, download time, layout and graphics. Usability is relatively close related to functionality and forms together with access and availability three important preconditions that can not be denied when focussing on the pre-transaction functionality.

The subjects in this article may be grouped into a framework for further research. The main subjects and their relation are given in figure 6 (below).

The scope of further research will be to investigate the relation between ICT, the pre-transaction stage (the Landscape model) and transaction costs in the business-to-consumer market. We assume that ICT has the ability to influence the pre-transaction stage (both the customer and the supplier side) which will have an impact on the pre-transaction transaction costs. The framework has several research implications:

- 1) The main pillar of further research will be the Landscape model itself. We will try to investigate whether using the model will improve the e-commerce possibilities of companies. This can be done by making sure that all the needed pre-transaction factors are in a right way available to the customers. Then the **prepurchase** and presale transaction costs for customers and suppliers might decline and/or customers and suppliers might get more results out of it. ICT will have a very large influence in realizing the availability of factors. Therefore further research will examine various customer and supplier supporting forms of ICT, how these forms influence the different pre-transaction factors and what it means in terms of transaction costs.
- 2) Not all products can be used for e-commerce trade. We assume that some products will and some will not be suited for e-commerce on the World Wide Web. This

might depend on the complexity of the product and the capability of ICT to support the pre-transaction factors. Further research will examine this relation.

- 3) Related to the second research implication we would like to say something about the chances of different types of markets to exist successfully online. This might be influenced by some product related pre-transaction aspects but also by the ability of ICT to support these factors successfully. Further research might investigate this relation.

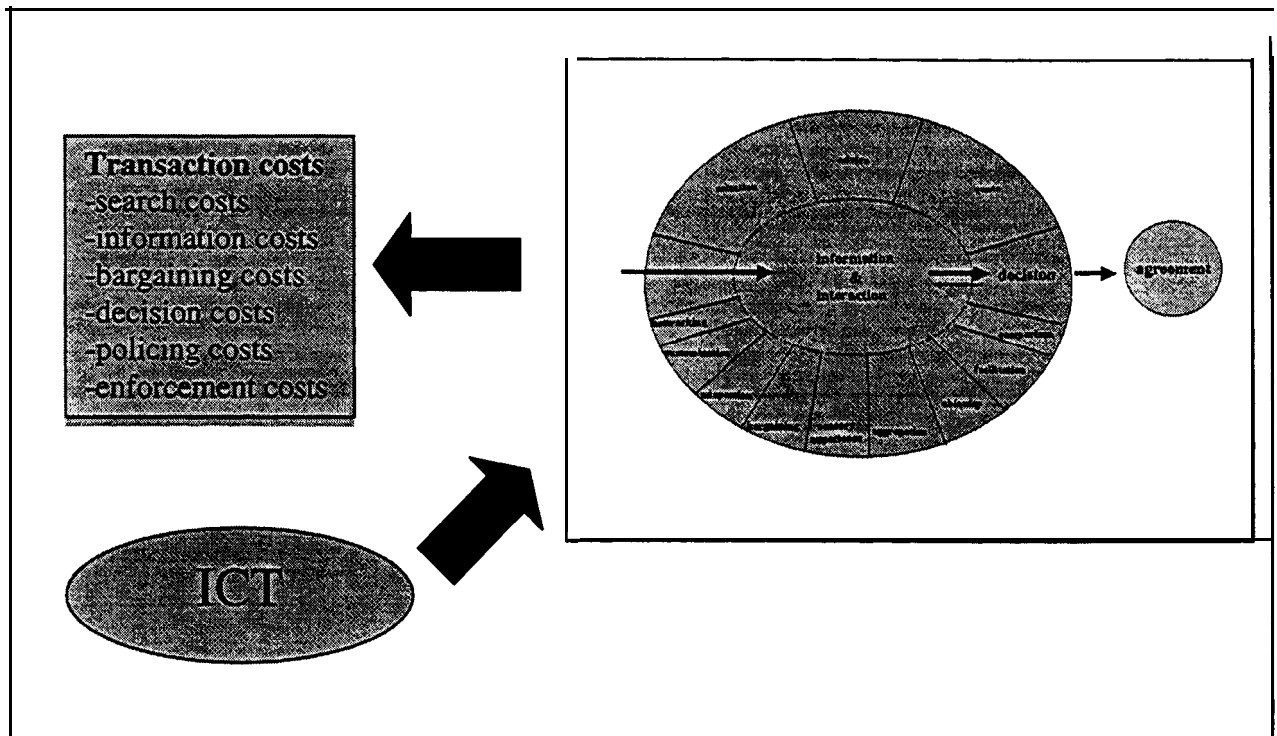


Figure 6: Research Framework

References:

- 1) Amazon.com, <http://www.amazon.com/>, May 1999.
- 2) Anderson, B.R., *Professional Selling*, Prentice-Hall, Inc., Englewood Cliffs, 1987.
- 3) Boekema, J.J., Bueren, E.B. van, Lobstein, S., Oosterhui, A. & Schweitzer, P., *Basisboek Marketing*, Wolters-Noordhoff, Groningen, 1995.
- 4) Champy, J., Buday J.B. & Nohria N., *The Rise of the Electronic Community*, *Information Week*, July, 1996.
- 5) Clemons, E.K. & Row, M.C., Information Technology and Industrial Cooperation: The Changing Economics of Coordination and Ownership, *Journal of Management Information Systems*, volume 9, issue number 2, p.9-28, 1992.
- 6) Coase, R.H., *The Firm, The Market and The Law*, The University of Chicago Press, Chicago, 1988.
- 7) Creemers, M.R., *Serie Research Memoranda: The Move to Ex-ante*, 1997.
- 8) Creemers, M.R., Dimensions of actions distribution, internal paper Vrije Universiteit, 1998.
- 9) Creemers, M.R., Informatie belangrijker dan prijs in de elektronische boekenmarkt, *Holland Management Review*, submitted, 1999.

- 10) Downes, L. & Mui, C., *Unleashing the Killer App*, Harvard Business School Press, Boston, 1998.
- 11) Engel, J.F., Miniard, R.D. & Blackwell, P.W., Consumer Decision Process-model (1995), *De Volkskrant* 4 jan, 1997.
- 12) Futrell, C., *Sales Munugement*, Dryden Press, Chicago, 1991.
- 13) Hagel, J. and Armstrong, G., *Net Gain*, Harvard Business School Press, Boston, 1997.
- 14) Harrel, G.D. and Frazier, G.L., *Marketing: Connecting with Customers*, Prentice-Hall, Inc., Upper Saddle River, 1999.
- 15) Ives, B. and Learmonth, J., "The Information System as a Competitive Weapon," with G.P. Learmonth, *Communications of the ACM*, Vol. 27, No. 12, December 1984, p. 1193-1201.
- 16) Ives, B. and Learmonth, Website Cox School of Business, department of MIS, <http://www.cox.smu.edu/mis/talks/www/cs1c/cs1c1.html>, february 1999.
- 17) Jackson, D.W., Cunningham, W.H. and Cunningham, I.C.M., *Selling, The Personal Force In Marketing*, John Wiley & Sons, Inc., New York, 1991.
- 18) Kalakota, R. & Whinston, A.B., *Electronic Commerce: A Managers Guide*, Addison-Wesley Longman, Inc., Reading, 1997.
- 19) Kotler, P., *Marketing Management*, Prentice Hall International Inc., Upper Saddle River, 1997.
- 20) Kotler, P. and Armstrong, G., *Principles of Marketing*, Prentice Hall, Inc., Upper Saddle River, 1999.
- 21) Malone, T.W., Yates, J. & Benjamin, R.I., Electronic Markets and Electronic Hierarchies, *Communications of the ACM*, volume 30, number 6, june 1987.
- 22) Mowen, J.C. & Minor, M., *Consumer Behavior*, Prentice-Hall, Inc., Upper Saddle River, 1998.
- 23) Rustenburg, van Hoften, Steenbeek, *Salesmanagement*, Educatieve Partners Nederland BV, Houten, 1998.
- 24) Siebel, T. & Malone, M., *Virtual Selling*, The Free Press, New York, 1996.
- 25) Silicon Graphics, Inc., http://www.sgi.com/misc/feedback_faq.html, May 1999.
- 26) Solomon, M.R., *Consumer Behavior*, Prentice Hall International Inc., Englewood Cliffs, 1996.
- 27) Steme, J., *Customer Service on the Internet, building relationships, increasing loyalty and staying competitive*, John Wiley & Sons, Inc., New York, 1996.
- 28) Strauss, J. and Frost, R., *Marketing on the Internet: principles of online marketing*, Prentice-Hall, Inc., Upper Saddle River, 1999.
- 29) Turban, E., McLean, E. & Wetherbe, J., *Information Technology for Management: making connections for strategic advantage*, John Wiley & Sons, Inc., New York, 1999.
- 30) Williamson, *The Economic Institutions of Capitalism*, The Free Press, New York, 1985.